Smith & Lowney PLLC
Richard A. Smith (WSBA No. 21788)*
Claire Tonry (WSBA No. 44497)*
2317 E. John St.
Seattle, WA 98112
Tel: (206) 805-0857
richard@smithandlowney.com
claire@smithandlowney.com

Center for Biological Diversity
Hannah Connor (VSB No. 74785)*
1411 K Street NW, Suite 1300
Washington, DC 20005
Tel: (202) 681-1676
hconnor@biologicaldiversity.org

Attorneys for Plaintiff
*Seeking Admission pro hac vice

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF ARIZONA

CENTER FOR BIOLOGICAL DIVERSITY, a non-profit organization,

Plaintiff,

v.

UNITED STATES ENVIRONMENTAL PROTECTION ADMINISTRATION, and MICHAEL S. REGAN, in his official capacity,

Defendants.

Case No.:

COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

INTRODUCTION

1. In this action, the Center for Biological Diversity (Center)—an environmental conservation organization that works to protect native species and their habitats against harm from threats such as toxic pollution—challenges the failure of the United States Environmental Protection Agency (EPA) to consult under Section 7 of the Endangered Species Act (ESA) on the effects to wildlife of its revisions that weakened the aquatic life water quality criteria for the heavy metal cadmium in 2016, 81 Fed. Reg. 19,176. In doing so, EPA put at greater risk many endangered species, including salmon, sturgeon, freshwater mussels, sea turtles and other species that are sensitive to cadmium pollution.

2. Section 7(a)(2) of the ESA requires EPA to ensure that any action it authorizes will not jeopardize the survival and recovery of endangered and threatened species or adversely modify habitat deemed essential to their survival and recovery. 16 U.S.C. § 1536 (a)(2). To fulfill the substantive mandates of the ESA, the action agency—the agency undertaking or authorizing an action, in this case EPA—must consult with scientists and other experts with the United States Fish & Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (together, the "Services")—agencies that specialize in the conservation and protection of threatened and endangered species in marine and non-marine environments—to both ensure against jeopardizing the species and to minimize potential for an action to harm ESA-listed species or their habitats.

3. Subject to its authority under the Clean Water Act (CWA), EPA is responsible for setting water quality criteria based on its evaluation of scientific information regarding the impacts of pollutants in any body of water. 33 U.S.C. § 1314(a). In setting criteria, EPA considers water quality effects that fall into two main categories, those designed to protect human health and those designed to protect aquatic life. The decisions EPA makes in setting national water quality criteria

profoundly affect water quality and riparian habitats across the country by influencing when and to what extent the presence of a pollutant—in this case, cadmium—can be considered safe in a waterway. These national criteria are commonly known as "304(a)" criteria, in reference to Section 304(a) of the CWA, 33 U.S.C. § 1314(a).

4. In 2016, EPA finalized a revised set of ambient water quality criteria relating to effects of cadmium on aquatic organisms based upon EPA's assessment of cadmium's ecological effects. These criteria are less protective of water quality than prior iterations of the criteria for chronic freshwater exposure.

5. Once finalized, states are required to consider EPA's revised cadmium criteria during their triennial re-examination of their water quality standards, and either adopt EPA's revised Section 304(a) criteria for cadmium or explain their reasons for not doing so. 40 C.F.R. § 131.20. At least 18 states, territories, and/or tribes have adopted EPA's revised cadmium criteria since they were promulgated in 2016, effectively weakening protections from cadmium exposure across the country as a result.

6. EPA took this action without consulting with the Services as required by Section 7 of the ESA. This is a clear violation of EPA's obligations to engage the Services in consultation to insure EPA's action "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species." 16 U.S.C. § 1536(a)(2). *See also* 50 C.F.R. § 402.14(a) (Requiring formal consultation for agency actions that "may affect listed species or critical habitat.")

7. EPA's failure to consult with the Services in revising the cadmium Section 304(a) criteria in 2016 follows a history of EPA consistently failing to consult under the ESA on the adoption of water quality criteria. These significant failures, compounded over time, even further

put imperiled species at risk and certainly do not satisfy the objectives of the ESA, which is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species." 16 U.S.C. § 1531(b).

8. EPA's failure to consult on the cadmium criteria revisions also does not abide by the Memorandum of Agreement (MOA) it entered into with the Services on January 10, 2001. *Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act*, 66 Fed. Reg. 11,202 (Feb. 22, 2001). The MOA contemplates a process for EPA's consultation with the Services on its development and adoption of aquatic life criteria, including for cadmium, under the CWA Section 304(a), 33 U.S.C. § 1314(a). 66 Fed. Reg. at 11,212. EPA and the Services recognized that consultation on EPA's adoption of these criteria, rather than consultation on state-by-state adoption of criteria, "will ensure a consistent approach to evaluating the effects of pollutants on species and identifying measures that may be needed to better protect them" and "will also ensure better consideration of effects on species whose ranges cross State boundaries." *Id.*

9. The seriousness of EPA's legal error in failing to consult with the Services on this action is compounded by the significance of the increased risk to threatened and endangered species from cadmium pollution as a result of this action. Cadmium is a toxic heavy metal that is found in mineral deposits and often used in manufacturing batteries, coatings, and electronics. Cadmium can be mined, and is also found in fossil fuels, iron and steel, cement, fertilizers, and in wastes from lead, copper, zinc, and coal mining. Among other methods, cadmium enters the environment through natural sources such as weathering and erosion of rocks and soil and through

human-caused sources such as mining, agriculture, and waste streams from industrial processes, manufacturing, coal ash ponds, fossil fuel combustion, incineration, and municipal activities.

10. Cadmium has no beneficial biological function and is harmful at any exposure level. Acute exposure to cadmium can cause increased mortality in aquatic and marine life, which can include species listed as threatened or endangered under the ESA. Chronic exposure can further result in adverse effects on growth, reproduction, immune and endocrine systems, and development and behavior in these aquatic species.

11. In its comments on the draft cadmium criteria, NMFS expressed concerns about EPA's "piecemeal approach" of foregoing consultation for "considering implications of such guidelines for broadly ranging species." In particular, NMFS expressed concern about the impacts of the less protective chronic criteria on salmon, sea turtles, sturgeon, and sawfish. NMFS's explanation of its concern with regard to sea turtles is instructive:

> EPA's cadmium guidelines apply to all waters of the US, so exposures would occur throughout the US portion of sea turtle ranges. Further, cadmium accumulates in tissue with age, and sea turtles are understood to be very long lived species. For example, green turtles reach sexual maturity between 20 and 50 years of age. For such long lived species we would need to consider whether cadmium accumulation from US waters over a lifespan would reach tissue concentrations directly resulting in or contributing to adverse effects.

12. The Services' consultation regulations address this type of "piecemeal approach" head-on by providing that formal consultation "may encompass . . . a number of similar individual actions within a given geographical area," but this "does not relieve the Federal agency of the requirements for considering the effects of the action as a whole." 50 C.F.R. § 402.14(c). Indeed, for federal programs that affect ESA-listed species, such as EPA's adoption of Section 304(a) water quality criteria under the CWA, programmatic consultation is required to allow the Services to establish standards, guidelines, and governing criteria to avoid or minimize the effects of the

program by instituting protocols to track and respond to the collective impacts of the program. *Id.* This programmatic review provides the only way to avoid piecemeal destruction of species and habitat. *See* 80 Fed. Reg. 26,832, 26,836 (May 11, 2015). That is because the aggregate impacts of the water quality criteria can be analyzed and meaningfully addressed only through programmatic review, which is necessary to ensure the effects of the program as a whole do not jeopardize listed species through death by a thousand small cuts. *See id., and see e.g.*, 66 Fed. Reg. at 11,212.

13. Plaintiff therefore seeks a declaration that EPA is in violation of ESA Section 7 for promulgating cadmium water quality criteria in 2016 without consultation, an order remanding those criteria and vacating the less protective chronic freshwater criterion, and any other appropriate relief.

JURISDICTION AND VENUE

14. This case arises under the ESA, 16 U.S.C. §§ 1531-1544, and the Court has jurisdiction under the ESA citizen suit provision, 16 U.S.C. §§ 1540(c), (g).

15. By written notice to Defendants dated December 16, 2020, Plaintiff provided notice of its intent to file suit more than sixty days prior to the filing of this complaint, as required by the ESA. 16 U.S.C. § 1540(g). Plaintiff's notice letter demanded that Defendants initiate and complete programmatic ESA consultation on EPA's 2016 promulgation of revised Section 304(a) water quality criteria for cadmium. Because Defendants failed to respond or remedy the alleged violation, an actual, justiciable controversy exists within the meaning of 28 U.S.C. § 2201(a).

16. This Court has the authority to grant declaratory relief pursuant to the Declaratory Judgment Act, 28 U.S.C. § 2201. This Court further has authority to grant injunctive relief under 28 U.S.C. § 2202 and 16 U.S.C. 1540(g)(1). The ESA's citizen suit provision allows the Court to

enjoin a federal agency that is in violation of the ESA and thereby compel compliance with the ESA's requirements, including the duty to consult under Section 7. 16 U.S.C. § 1640(g).

17. Venue is appropriate in this Court under 28 U.S.C. § 1391(e)(1) because Plaintiff's principal place of business is Tucson, Arizona, thus Plaintiff resides in this District.

PARTIES

Plaintiff

18. Plaintiff Center for Biological Diversity is a national nonprofit conservation organization that works through science, law, and policy to secure a future for all species, great or small, especially those hovering on the brink of extinction. The Center has more than 1.6 million supporters worldwide, including approximately 89,610 members. The Center has worked for decades to safeguard water and aquatic habitats for people, plants, and animals. The Center's members and staff value and benefit from rare species' continued existence in the wild and are harmed by water degradation that threatens wild species' survival and recovery. The Center has worked for years to protect imperiled species that may be harmed by exposure to toxic chemicals and heavy metals such as cadmium. The Center brings this action on behalf of itself and its members.

19. The Center and its members are harmed by EPA's failure to consult with FWS and NMFS on the effects of its revision of the cadmium criteria on species listed as threatened or endangered under the ESA.

20. The Center's members derive aesthetic, recreational, emotional, and spiritual benefits from aquatic species, including salmon, sturgeon, amphibians, reptiles such as sea turtles, mussels, and birds, and their continued existence in their native habitats. The Center's members

include individuals who regularly visit natural areas occupied by threatened and/or endangered species impacted by EPA's cadmium criteria.

21. The Center's members include individuals who derive aesthetic, spiritual, recreational, and professional benefits from endangered loggerhead sea turtles, Atlantic sturgeon, and pallid sturgeon, and threatened green sturgeon, delta smelt, salmon, steelhead, and mussels. These members enjoy swimming, snorkeling, boating, and walking the shores and banks of waterways seeking opportunities to learn about and view these species. However, their enjoyment is diminished by actions that reduce the abundance and fitness of these species.

22. The Center's has members, for example, that derive aesthetic and recreational benefits from observing Atlantic sturgeon, which can grow to over 500 pounds and like to breach above the water's surface during spawning season. However, these members' enjoyment is lessened when there are fewer sturgeon to observe and when the sturgeons' health and vigor is impaired. Similarly, the Center has members who regularly visit areas where the southern population of green sturgeon is known to occur in hopes of seeing these fish in the wild, but their efforts and aesthetic, recreational, and spiritual enjoyment is frustrated by the green sturgeon's scarcity, which is due in part to water pollution.

23. The populations of endangered and threatened species from which the Center's members benefit, including loggerhead sea turtles, Atlantic sturgeon, pallid sturgeon, green sturgeon, salmon, and steelhead, range across state lines and are impacted by cadmium pollution. Atlantic sturgeon, for instance, are exposed to anthropogenic cadmium contamination in Chesapeake Bay and the James River, where Center members go to observe the fish.

24. Several of these species, including sea turtles and sturgeon, are also long-lived and therefore particularly susceptible to chronic cadmium pollution and adverse impacts from cadmium accumulating in tissue over many decades.

25. EPA's failure to consult with the Services on the cumulative, interstate, and range-wide impacts of its revised cadmium criteria on such species bypasses substantive safeguards the Services can apply to avoid jeopardy to the species and avoid the likelihood of adverse effects, to the detriment of the species, and ultimately to the Center's members who benefit from these species' health and survival. For example, had EPA consulted the Services, it would have had to take into account the totality of the impact of increasing the freshwater chronic cadmium criterion on long-lived species that inhabit waterways that cross state lines, and which are exposed to cadmium pollution in multiple forms from multiple pathways. This assessment would present multiple opportunities—and likely trigger obligations—for EPA and the Services to modify the criteria to be more protective of endangered and threatened species. At least 18 states, territories, and/or tribes would then be implementing more protective criteria in their CWA programs.

26. Plaintiff has also suffered a procedural injury from Defendants' failure to comply with Section 7 of the ESA. Because compliance with the Section 7 consultation process is essential to protecting listed species and critical habitats—to which the Center's members have concrete interests, Defendants' procedural failure to comply with Section 7 is causing current and ongoing harm to Plaintiff's substantive recreational, scientific, spiritual, and aesthetic interests. The Center relies on Defendants' compliance with Section 7 to achieve the Center's organizational purposes on behalf of itself and its members, including monitoring the impacts of agency actions on the environment and listed species; monitoring legal compliance concerning environmental

management; educating members, directors, staff, and the public concerning species management and the state of the environment; and advocating for policies that protect habitats and wildlife.

27. Plaintiff is a non-profit conservation organization with limited resources that can be dedicated to its core mission to protect the environment, imperiled species, and the habitats they rely on. Defendants' actions impede Plaintiff's ability to carry out its fundamental mission, and directly undercuts decades of successful work by Plaintiff to enforce environmental laws that protect waterways and listed species.

28. Defendants' failure to comply with the ESA is causing actual, concrete injuries to the Center and its members. The interests and organizational purposes of the Center and its members are directly and irreparably injured by Defendants' violations of law as described in this Complaint. Unless this Court grants the requested relief, harm to the environment and protected species will continue to accrue, and the aesthetic, recreational, educational, professional, scientific, spiritual, and conservation interests of Plaintiff and its members will continue to be adversely affected.

29. The relief Plaintiff seeks in this lawsuit will redress its injuries by requiring EPA to comply with the ESA. This relief will protect Plaintiff's interests by ensuring that listed species will not be jeopardized by the revision of the cadmium criteria, as the ESA requires, and give Plaintiff and its members more comprehensive and complete information regarding the revision's threats to waterways, protected species, and other valued resources. It will allow Plaintiff, its members and supporters, and others who are injured by less stringent regulation of toxic water pollution, to participate and advocate more effectively for changes to mitigate the adverse impacts of the cadmium criteria revision.

Defendants

30. Defendant United States Environmental Protection Agency is an independent agency of the executive branch of the United States government. EPA is the federal agency responsible for applying and implementing the CWA at the national level.

31. Defendant Michael S. Regan is the Administrator of EPA and has authority over its actions. Plaintiff brings this action against Administrator Regan in his official capacity only.

LEGAL BACKGROUND

The Endangered Species Act

32. With the ESA, Congress intended endangered species to be afforded the highest of priorities. The ESA's purpose is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species." 16 U.S.C. § 1531(b).

33. The ESA assigns responsibility to implement the statute to the Secretaries of Commerce and Interior, which in turn have delegated responsibility to NMFS and FWS, respectively. 50 C.F.R. § 402.01.

34. To fulfill the substantive purposes of the ESA, federal agencies are required to engage in Section 7 consultation with the Services to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical." 16 U.S.C. § 1536(a)(2). Formal consultation is required if an agency determines that any of its actions "may affect listed species or critical habitat." 50 C.F.R. § 402.14(a).

35. The ESA's regulatory definition of "action" is broad and includes "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas," such as the promulgation of regulations, or any "actions directly or indirectly causing modifications to the land, water, or air." *Id.*

36. Section 7 consultation is required for all such actions "in which there is discretionary Federal involvement or control." 50 C.F.R. § 402.03. When an agency "had some discretion to influence or change the activity for the benefit of a protected species" the action involves sufficient discretion to require Section 7 consultation. *Karuk Tribe of Cal. v. United States Forest Service*, 681 F.3d 1006, 1024 (9th Cir. 2012).

37. Section 7(a)(2) and its implementing regulations set forth a detailed process that must be followed before agencies take or approve actions that may affect threatened or endangered species or critical habitat.

38. Each federal agency must "review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat" in the action area and thus whether consultation is required. 50 C.F.R. § 402.14(a). The term "may affect" is broadly construed to include "[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character," and thus is easily triggered. 51 Fed. Reg. 19,926, 19,949 (June 3, 1986). The "action area" includes all areas that would be "affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." 50 C.F.R. § 402.02. Only if an action agency makes a non-arbitrary "no effect" determination can the agency proceed without consultation.

39. If listed species or critical habitat may be present in the action area, the agency must analyze the proposed action's effects. It may do so by first engaging in "informal consultation"

with the Service(s). *See* 50 C.F.R. §§ 402.12, 402.13, 402.14(b)(1). If the agency concludes, in a biological assessment, that the action is "not likely to adversely affect" listed species—and the Service lawfully concurs in writing—then the consultation process is completed. *Id.* § 403.13(c). Conversely, if the action is "likely to adversely affect" listed species, the agency must enter into "formal consultation" with the Service(s), a more extensive and protective process to consider the action's impacts. *Id.* §§ 402.12(k), 402.14(a).

40. Formal ESA consultation commences with the action agency's written request for consultation and concludes with the Services' issuance of a "biological opinion." *Id.* §§ 402.02; 402.14(c), (g)(4).

41. The biological opinion is the heart of the formal consultation process and states the Services' opinion as to whether the effects of the action are "likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat." *Id.* § 402.14(g)(4), (h)(3); *see* 16 U.S.C. § 1536(a)(2), (b)(3)(A).

42. If the Services determine that the action is likely to jeopardize a species, the biological opinion must outline "reasonable and prudent alternatives" to the action, if any exist, that will avoid jeopardy and "which [the agency] believes would not violate [Section 7(a)(2)]." 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.14(h)(3). The Services must also provide "those reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize such impact. 16 U.S.C. § 1536(b)(4)(ii).

43. The Services' ESA implementing regulations anticipate "programmatic consultation" for federal programs that may affect listed species, such as the adoption of water quality criteria under the CWA. Programmatic consultation is defined as "a consultation addressing an agency's multiple actions on a program, region, or other basis" and allows the

Services to guide the implementation of such programs by establishing standards, guidelines, or governing criteria to avoid, minimize, or offset the effects of the program on listed species and critical habitat, and to establish protocols to track and respond to the collective impacts of actions taken pursuant to the program. *See* 50 C.F.R. § 402.02; *id.* § 402.14(c)(4) (requiring Federal agencies to consider "the effects of the action or actions as a whole"). The Services' regulations provide that for federal programs, programmatic consultations and project-specific consultations work in tandem, with each playing a vital role in protecting imperiled species. *See* 84 Fed. Reg. 44,976, 44,997 (Aug. 27, 2019).

44. Foregoing ESA Section 7 consultation on an agency action that may affect broad-ranging, long-lived species, such as promulgation of national water quality criteria, in favor of disjointed consultation on individual states' adoption of water quality standards results in an incomplete consideration of the action in a manner inconsistent with the ESA's requirements.

The Clean Water Act

Overview

45. Congress adopted the CWA in 1972 "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The CWA prohibits the discharge of pollutants to waters absent an authorization under the Act. 33 U.S.C. § 1311(a). Authorizations to discharge pollutants from point sources to navigable waters are issued by EPA or a state with an EPA-delegated permit program under the National Pollutant Discharge Elimination System (NPDES). NPDES permits and, generally, other activities authorized by the CWA must ensure that water quality standards are not violated. 33 U.S.C. § 1311(b)(1)(C).

46. "Water quality standards are provisions of State or Federal law which consist of a designated use or uses for the waters of the United States and water quality criteria for such waters

based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the Act." 30 C.F.R. § 131(3)(i). "Such standards serve the dual purposes of establishing the water quality goals for a specific water body and serve as the regulatory basis for the establishment of water-quality-based treatment controls and strategies beyond the technology-based levels of treatment" also required by the CWA. 40 C.F.R. § 131.2.

47. Water quality standards also serve as a target for CWA restoration activities such as total maximum daily loads (TMDLs). CWA Section 303 requires states to identify waterbodies that fail to attain water quality standards and TMDLs must be developed and implemented for these waters. A TMDL represents the maximum amount of pollutant loading that a waterbody can receive from all combined sources without exceeding applicable water quality standards, sometimes described as the "pollution budget." From this information, opportunities for reducing excessive loads can be identified and implemented, individual contributions can be capped, and additional loading prevented. TMDL-derived effluent limitations on pollutants of concern must be included in NPDES permits. TMDLs are also a primary mechanism for development and implementation of controls on non-point source pollution (unregulated by the pollutant discharge permit system) under the CWA. In sum, water quality standards form a key legal basis for controlling pollutants entering the waters of the United States. Because ensuring that waterbodies are of sufficient quality to support designated aquatic life uses (e.g., fish and shellfish spawning and rearing) is crucial to the protection of threatened and endangered aquatic species, water quality standards are important for achievement of ESA goals.

48. Water quality criteria are a component of water quality standards that represent the conditions (e.g., concentrations of particular chemicals, levels of certain parameters) sufficient to

restore and maintain the chemical, physical, and biological integrity of water bodies and protect applicable designated uses. If a water quality criterion is exceeded, the water quality may pose an ecological (or human health) risk, and protective or remedial action may be needed.

EPA's Promulgation of Section 304(a) Water Quality Criteria

49. EPA publishes, and from time-to-time revises, criteria for water quality under CWA Section 304(a), 33 U.S.C. § 1314(a), that must reflect the latest scientific knowledge. EPA's Section 304(a) national criteria recommendations ("304(a) criteria") provide quantitative concentrations or levels and/or qualitative measures of pollutants that, if not exceeded, will generally ensure adequate water quality for protection of a designated use. Separate water quality criteria for a particular pollutant are typically established based on 1) human health protection, 2) recreational use standards, and 3) protection of aquatic life, as well as other common designated water body uses.

50. EPA uses its *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (1985) (commonly referred to as the "1985 Guidelines" or "Aquatic Life Guidelines") to derive Section 304(a) criteria to protect aquatic life from the effects of toxic pollutants. EPA Office of Water, *Water Quality Standards Handbook Chapter 3: Water Quality Criteria*, Pub. EPA 823 B 17 001, at 14 (2017). The Aquatic Life Guidelines provide suggestions for the development, selection, and consideration of scientific data to inform the derivation of aquatic life water quality criteria, as well as options and factors for consideration in the expression of such criteria. Expression of criteria comprises magnitude (e.g., pollutant concentration limitation in water, usually a maximum concentration), frequency (e.g., how often the magnitude limit may be exceeded), and duration (how often the magnitude limit

may be exceeded). Substantial discretion is used by EPA in its expression of criteria with these components.

51. According to the Aquatic Life Guidelines, the optimal method for establishing criteria would involve impractical field tests:

> If it were feasible, a freshwater (or saltwater) numerical aquatic life [304(a) criteria] for a material should be determined by conducting field tests on a wide variety of unpolluted bodies of fresh (or salt) water. It would be necessary to add various amounts of the material to each body of water in order to determine the highest concentration that would not cause any unacceptable long-term or short-term effect on the aquatic organisms or their uses. The lowest of these highest concentrations would become the freshwater (or saltwater) [304(a) criterion] for that material, unless one or more of the lowest concentrations were judged to be outliers.

Aquatic Life Guidelines at 1. Because it is not feasible to conduct such field tests, the Aquatic Life Guidelines set forth suggestions for collection, review, and analysis of "appropriate" data and the exclusion of "questionable" data. *Id*. at 11 – 14. For instance, the Aquatic Life Guidelines indicate that the development of aquatic life criteria be based on EPA's discretionary selections of data concerning toxicity tests conducted on sets of various categories of test species. *Id.* at 12 – 13. The use of additional data is deemed "desirable" but discretionary. *Id.* at 14.

52. Such criteria should be numeric unless numeric criteria cannot be developed. 40 C.F.R. § 131.11(b).

53. While the Aquatic Life Guidelines provide substantial guidance,

> … much of the guidance is necessarily qualitative rather than quantitative; *much judgment will usually be required to derive a water quality criterion for aquatic organisms and their uses*. In addition, although [the Aquatic Life Guidelines] attempts to cover all major questions that have arisen during use of previous versions and drafts, it undoubtedly does not cover all situations that might occur in the future. All necessary decisions should be based on a thorough knowledge of aquatic toxicology and an understanding of these Guidelines and should be consistent with the spirit of these

> Guidelines, i.e., to make best use of the available data to derive the most appropriate criteria. [The Aquatic Life Guidelines] should be modified whenever sound scientific evidence indicates that a national criterion produced using these Guidelines would probably be substantially overprotective or underprotective of the aquatic organisms and their uses on a national basis. Derivation of numeric national water quality criteria for aquatic organisms and their uses is a complex process and requires knowledge in many areas of aquatic toxicology; any deviation from these Guidelines should be carefully considered to ensure that it is consistent with other parts of these Guidelines.

Aquatic Life Guidelines at 9 (italics added).

54. Once EPA promulgates draft Section 304(a) criteria, the public and other government entities have an opportunity to comment. EPA exercises its discretion to alter its draft criteria in response to such comments.

55. In summary, while EPA's discretion is not unfettered and must comply with the ESA's and CWA's requirements, EPA exercises discretion at each step of the Section 304(a) criteria setting process: 1) EPA determines whether existing criteria warrant revisions, 2) EPA decides which data are reliable, how much weight to give various data sources, and what assumptions are appropriate, 3) EPA decides whether deviation from procedures in its own internal guidance is warranted to, e.g., better protect aquatic organisms on a national basis, 4) EPA selects how the criteria should be expressed, and 5) EPA decides whether its scientific analysis should be altered in response to public comments.

State Water Quality Criteria

56. States are primarily responsible for reviewing, establishing, and revising water quality standards, including water quality criteria. 40 C.F.R. § 131.4(a). However, every three years, states must consider any new or revised water quality criteria promulgated by EPA. 40 C.F.R. § 131.20.

57. States must either "adopt new or revised criteria for parameters for which EPA has published new or updated CWA section 304(a) criteria recommendations," or provide an explanation to EPA that meets statutory and regulatory criteria for declining to adopt the criteria. *Id.*; 33 U.S.C. § 1313(c).

58. EPA then approves or disapproves the state's water quality standards and can promulgate new or revised water quality standards if the state's standards do not meet regulatory requirements. 33 U.S.C. § 1313(b), (c); 40 C.F.R. § 131.5(b). EPA does consult the Services before some, but not all, decisions on state water quality standards. *See, e.g.*, *Nw. Envtl. Advocates v. United States Fish & Wildlife Serv.*, No. 3:18-CV-01420-AC, 2019 U.S. Dist. LEXIS 219178, at *5 (D. Or. Dec. 20, 2019) (alleging failure to consult on revised criteria); *Our Children's Earth Found. v. United States EPA*, No. 13-cv-02857-JSW (KAW), 2016 U.S. Dist. LEXIS 40558, at *12 (N.D. Cal. Jan. 21, 2016) (same). However, EPA has not engaged in ESA Section 7 consultation for its promulgation of national CWA Section 304(a) criteria.

FACTUAL BACKGROUND

Cadmium's Impact on ESA-Listed Species

59. Cadmium is a naturally occurring, relatively rare metal in the environment. Anthropogenic sources account for the vast majority—more than 90 percent—of the total cadmium present in surface water. Atmospheric particulate deposition from fossil fuel combustion (including coal) contributes approximately 40 percent, while the application of phosphate fertilizer for agriculture releases 33 to 56 percent of the total anthropogenic cadmium to the environment. Cadmium is often detected in runoff from urban and industrial areas, and rivers are a major secondary source of cadmium to the ocean. As of 2007, cadmium had been identified at 1,014 of

the 1,669 most serious hazardous waste sites on the National Priorities List. Of these 1,014 sites, cadmium was identified in surface waters at 354 sites, and in ground water at 675 sites.

60. Cadmium, which has no beneficial biological function in living organisms, is toxic at low concentrations to plants, fish, birds, mammals (including humans), and microorganisms. This heavy metal causes a range of impacts, including both acute and sublethal effects, on aquatic organisms. Cadmium is a teratogen, meaning that it causes malformations of embryos, and is also a carcinogen. In aquatic organisms, exposure adversely effects growth, reproduction, immune and endocrine systems, development, and behavior. In a 2005 study that compared the acute toxicity of 63 heavy metals to a widespread crustacean found in both fresh and brackish water, cadmium was the most toxic.

61. Cadmium bioaccumulates in all levels of the food chain in both aquatic and terrestrial organisms. In both freshwater and marine animals, cadmium can bioaccumulate to concentrations hundreds to thousands of times higher than in the water. Bioconcentration factors range from 3 to 4,190 in freshwater organisms and from 5 to 3,160 in saltwater organisms.

62. A 1985 Department of the Interior study examined concentrations of cadmium in a variety of aquatic and terrestrial flora and fauna, and identified the following trends relevant here: 1) in general, marine organisms contain "significantly higher cadmium residues" than freshwater organisms; 2) cadmium tends to concentrate in the liver and kidneys of vertebrates; 3) cadmium concentrations are higher in older organisms, especially in marine vertebrates; and 4) cadmium concentrations are "dependent upon the species analyzed, the season of collection, ambient cadmium levels, and the sex of the organism." U.S. Dep't of Health & Human Servs., Public Health Serv. Agency for Toxic Substances and Disease Registry, Toxicological Profile for Cadmium 29, 304 (2012), available at https://www.atsdr.cdc.gov/toxprofiles/tp5.pdf.

63. Cadmium is considered one of the most toxic metals to fish and causes a range of impacts. Acutely, cadmium causes gill toxicity leading to the organism's inability to breathe. Cadmium also causes a range of sublethal effects in fish. For example, cadmium competes with calcium uptake because the two chemicals are similar, which can cause skeletal malformations and acute hypocalcemia, which is characterized by cadmium accumulation in tissues and decreased calcium concentrations in plasma. Cadmium also causes disease of the gill, liver, and kidneys in fish, renal tubular damage, alterations of free radical production and the antioxidant defense system, immunosuppression, and structural effects on invertebrate gills. Cadmium pollution has also been shown to negatively impact certain species' physiological processes and ability to withstand stress. This heavy metal also causes neurotoxic effects in fish that can manifest in altered behavior, the most widely observed of which is hyperactivity. Hyperactivity makes fish more likely to be seen and attacked by predatory fish. In predatory fish, hyperactivity results in lower success rates for detecting, orienting to, and swallowing prey. Indeed, most fish that exhibited hyperactive behavior as a result of long-term exposures ultimately perished.

64. Salmonid species appear to be particularly sensitive to cadmium. Cadmium is known to disrupt the endocrine functions of endangered Atlantic salmon, as well as other threatened and endangered salmon and steelhead species in the Pacific northwest and is thereby negatively impacting the reproductive capabilities of these endangered species.

65. Elevated concentrations of cadmium have been identified in federally endangered shortnose sturgeon collected from the Delaware and Kennebec Rivers, which had total toxicity equivalent concentrations of cadmium above adverse effect concentration levels. In addition, a study identified cadmium levels above background in the kidneys of Missouri River Pallid sturgeon.

66. Numerous studies have identified elevated levels of cadmium in sea turtles. A 2017 paper review of the available scientific literature on metals contamination in sea turtles found that of the most toxic metals (lead, mercury, and cadmium), the concentration of cadmium in sea turtle blood was the highest. Among the non-essential metals, cadmium was found in all reported tissues, with the highest concentrations found in the kidneys. Similarly, a 2018 study of 137 specimens of green sea turtles collected from around the world identified cadmium in all the samples, with the highest bioconcentration in the kidneys. Specimens from the Pacific Ocean had higher cadmium concentrations in the liver than samples from the Atlantic Ocean. Cadmium concentrations measured in tissues were generally greater than concentrations found in other marine organisms, including dolphins.

67. Cadmium also negatively impacts mussels, including protected freshwater mussels. The recovery plan for the Cumberland and Tennessee River mussels explains that many endangered freshwater mussels are "among the most intolerant organisms to heavy metals," and "[c]admium appears to be the heavy metal most toxic to mussels." Cadmium has been correlated with the decline of the dwarf wedgemussel, and FWS has identified cadmium as "acutely toxic" to juvenile mapleleaf mussels. Alarmingly, FWS has noted that, "[v]irtually nothing is known about the sublethal impacts in mussels to long-term exposure to metals at low concentration. . . . Sublethal effects are frequently observed at concentrations only one-half the lethal concentration, which indicates that freshwater mussels become stressed at metal concentrations much lower than those reported in acute toxicity tests." Thus, even small amounts of cadmium may have disproportionately adverse effects for endangered species as they tend to bioaccumulate contaminants rather than metabolizing and releasing them.

68. In summary, both FWS and NMFS have identified cadmium pollution as a threat to ESA-listed species under their jurisdiction. To date, more than 25 recovery plans identify cadmium as potentially toxic or harmful to water dependent threatened or endangered species. Some of the species harmed by cadmium pollution include the fine-rayed pigtoe pearly mussel, shiny pigtoe pearly mussel, tan riffle shell mussel, Alabama cave shrimp, Atlantic salmon, Snake River sockeye and chinook salmon, Barton Springs salamander, Chiricahua leopard frog, clubshell, northern riffleshell, Cumberland elktoe, oyster mussel, Cumberland combshell, purple bean, rough rabbitsfoot, scaleshell mussel, dwarf wedgemussel, higgins eye pearly mussel, fat threeridge, shinyrayed pocketbook, gulf moccasinshell, ochlockonee moccasinshell, oval pigtoe, chipola slabshell, purple bankclimber, Illinois cave amphipod, killer whale, Ozark cavefish, pallid sturgeon, pecos bluntnose shiner, Puget Sound salmon, shortnose sturgeon, delta smelt, Sacramento splittail, spectacled eider, Cook Inlet beluga whale, and the winged mapleleaf mussel. Information from these recovery plans has never been incorporated into any of EPA's assessments of cadmium when it set water quality criteria.

EPA's Regulation of Cadmium

69. EPA first promulgated ambient water quality criteria for cadmium under Section 304(a) in 1980, and has since updated the criteria in 1985, 1995, 2001, and 2016. The criteria have changed through the years. In 1980, EPA set the freshwater acute exposure criterion at 1.5 µg/L[1] total recoverable cadmium and the freshwater chronic exposure criterion at 0.012 µg/L as a 24-hour average, normalized to a hardness of 50 mg/L as calcium carbonate ($CaCO_3$). For saltwater, also referred to as "estuarine/marine," EPA set the acute exposure criterion at 59 µg/L and the chronic exposure criterion at 4.5 µg/L as a 24-hour average.

[1] Micrograms per liter, equivalent to parts per billion.

70. In 1985, EPA updated the freshwater acute exposure criterion to 1.8 µg/L total recoverable cadmium as a one-hour average that should not be exceeded more than once every three years, and the freshwater chronic exposure criterion at 0.66 µg/L as a four-day average that should not be exceeded more than once every three years, normalized to a hardness of 50 mg/L as calcium carbonate. EPA noted that the criteria may not protect brook trout, brown trout, or striped bass. For saltwater concentrations, the acute exposure criterion was set at 43 µg/L as a one-hour average that should not be exceeded more than once every three years and the chronic exposure criterion at 9.3 µg/L as a four-day average that should not be exceeded more than once every three years.

71. In 1995, EPA updated the freshwater acute exposure criterion to 2.067 µg/L total recoverable cadmium as a one-hour average that should not be exceeded more than once every three years, and the freshwater chronic exposure criterion to 1.429 ug/L as a four-day average that should not be exceeded more than once every three years, normalized to a hardness of 50 mg/L as calcium carbonate. The revisions to the freshwater criteria thus represented a weakened standard compared to the 1985 criteria. EPA did not update the saltwater criteria in 1995.

72. In 2001, EPA updated the freshwater acute exposure criterion to 2.0 µg/L dissolved cadmium as a one-hour average that should not be exceeded more than once every three years, and the freshwater chronic exposure criterion to 0.25 µg/L as a four-day average that should not be exceeded more than once every three years, normalized to a total hardness of 100 mg/L as calcium carbonate. For saltwater concentrations, the criteria were set at 40 µg/L for acute toxicity as a 24-hour average that should not be exceeded more than once every three years and 8.8 µg/L for chronic toxicity as a four-day average that should not be exceeded more than once every three

years. Beginning with this revision, EPA used dissolved cadmium versus total recoverable cadmium in setting the water quality criteria.

73. In 2015, EPA proposed to revise the aquatic life ambient water quality criteria for cadmium, including by relaxing the freshwater chronic criteria nearly threefold. Specifically, EPA proposed to update the freshwater acute exposure criterion to 2.1 µg/L as a one-hour average that should not be exceeded more than once every three years, and the freshwater chronic exposure to 0.73 µg/L, as a four-day average that should not be exceeded more than once every three years normalized to a total hardness of 100 mg/L as calcium carbonate. EPA proposed to revise the acute saltwater criteria to 35 µg/L as a one-hour average that should not be exceeded more than once every three years and the chronic saltwater criteria to 8.3 µg/L as a four-day average that should not be exceeded more than once every three years. Following an external peer review, EPA released the draft criteria for public comment.

74. In responding to public comments on the draft revised cadmium Section 304(a) criteria, EPA exercised its discretion to make various changes to its scientific analysis. For instance, in response to comments from the U.S. Geological Survey, EPA agreed to include artificial stream study data describing cadmium effect concentrations on behavior and predator-prey interactions, to re-evaluate the test data used for calculating effects values for rainbow trout and Chinook salmon, and to delete certain unpublished data in revised calculations of the criteria. EPA chose to either include or exclude other additional scientific data offered by the U.S. Geological Survey in revisions to the draft revised cadmium criteria.

75. Following the public comments, EPA finalized the draft criteria in 2016 and revised the freshwater acute exposure criterion to 1.8 µg/L dissolved cadmium as a one-hour average that should not be exceeded more than once every three years and 0.72 µg/L for freshwater chronic

exposure, as a four-day average that should not be exceeded more than once every three years, normalized to a total hardness of 100 mg/L as calcium carbonate. For saltwater concentrations, the acute exposure criterion was set at 33 µg/L as a one-hour average that should not be exceeded more than once every three years and the chronic exposure criterion was set at 7.9 µg/L, as a four-day average that should not be exceeded more than once every three years. Overall, the revised criteria were slightly stronger for marine/estuarine waters and acute freshwater exposure, but a weaker standard for chronic freshwater exposure.

76. In response to the proposed 2016 revisions, NMFS submitted comments to EPA, expressing concern that the proposed criteria may not be sufficient to protect listed species and alerting EPA that it did not concur with its assessment regarding EPA's duties under Section 7 of the Act:

> EPA's reliance on ESA Section 7 consultation only when the agency approves state-proposed water quality criteria results in a piecemeal approach when considering implications of such guidelines for broadly ranging species. The segmentation of an action under ESA section 7 leads to an incomplete consideration of the effects of the action that is legally vulnerable. Both agencies need to agree on and implement an assessment strategy that takes into account the aggregate effects of EPA's authorizations of state-proposed water quality criteria such that EPA can ensure that these authorizations, taken together, do not jeopardize the continued existence of ESA-listed species or adversely modify designated critical habitat. Given the scope of the guidelines, the conclusions of such an assessment and any associated implementation guidance would need to have the same authority/regulatory implications of a section 7 consultation.

77. The Center also recommended in its comments that EPA consult with the Services to ensure that the criteria are fully protective of ESA-listed species.

78. Instead, in its response to comments, EPA replied that consultation is not "legally necessary" because the criteria "do[] not impose any legally binding requirements on states." EPA also stated that "national-level efforts to consult . . . would be neither efficient, likely to ensure a

consistent approach to evaluating the effects of pollutants on species, nor necessary to address the effects of [the] action on species whose ranges cross state boundaries."

79. EPA did not issue or make a "no effect" determination under 50 C.F.R. § 402.02, nor did it initiate formal or informal consultation as part of its 2016 revision of the Section 304(a) cadmium criteria.

80. EPA has previously acknowledged the benefits of nationwide consultations and agreed with the Services to consult on its water quality criteria. In 2001, EPA and the Services signed the *Memorandum of Agreement Between the EPA, FWS and NMFS Regarding Enhanced Coordination Under the CWA and ESA* to affirm where and how EPA would ensure compliance with the ESA. 66 Fed. Reg. 11,202 (Feb. 22, 2001). At this time, EPA committed to consult with the Services when it develops water quality criteria. EPA also recognized that consulting on its water quality criteria is beneficial:

> [C]onducting consultations on a State-by-State basis is not the most efficient approach to evaluating the effects of water pollution on endangered and threatened species throughout the country. National 304(a) consultations will ensure a consistent approach to evaluating the effects of pollutants on species and identifying measures that may be needed to better protect them. National consultations will also ensure better consideration of effects on species whose ranges cross State boundaries.

Impacts to ESA-Listed Species from EPA's Revision of the Cadmium Criteria

81. EPA's establishment of Section 304(a) water quality criteria, which are published in the Federal Register, is a discretionary agency "action" within the meaning of the ESA that has effects that result in modification to water by ultimately causing revisions or updates to every state's water quality standards and the pollution control and restoration requirements that derive from water quality standards.

82. States are required to update their water quality standards every three years. 33 U.S.C. § 1313(c). If EPA has published updated water quality criteria since a state's last triennial

review, there are substantive impacts from that publication. States are then required to consider EPA's new criteria and either adopt updated water quality standards or explain the decision not to do so in their submission to EPA. 40 C.F.R. § 131.20(a).

83. More often than not, states choose to simply adopt EPA's 304(a) criteria, given the resources that EPA invests in developing the criteria and that states are submitting water quality standards for approval to EPA – the very same agency that develops the water quality criteria. Therefore, EPA's decision to update the water quality criteria implicates impacts to ESA-listed species and their habitat.

84. Indeed, at least eleven states, the District of Columbia, two territories, and four tribes have developed revised cadmium water quality standards and submitted them to EPA for approval since EPA published the 2016 cadmium water quality criteria. In every single case, these entities proposed to use EPA's water quality criteria, and EPA universally approved that choice. In addition, when EPA promulgated cadmium water quality standards for the state of Oregon, it used its 2016 cadmium water quality criteria.

85. EPA's issuance of the cadmium criteria, therefore, clearly results in modifications to water quality standards and water quality itself, which "may affect" listed species that rely on those waters.

86. For instance, fish, including ESA- listed species, can experience adverse behavioral and health effects from chronic exposure to elevated cadmium concentrations of 0.1 µg/L. Low level increases in cadmium may also have negative impacts on fish reproduction, such as a decrease in egg production, brood size, and hatching success. Listed fish that consume cadmium contaminated prey and sediments are especially vulnerable to any additional body burden of cadmium, including from low levels of cadmium pollution in the water column. Furthermore, in

its consultation over Oregon's cadmium criteria NMFS determined that a 2.0 µg/L freshwater acute criterion would jeopardize the continued existence of ESA-listed species occurring in that state, several of which occur in other states. NMFS's analyses also indicated exposure to 0.25 µg/L cadmium would result in sublethal effects to listed species, and EPA's proposed national criteria of nearly three times that concentration would have more severe effects. NMFS went on to raise specific concerns about EPA's cadmium criteria's potential effects on ESA-listed sea turtles, sturgeon, smalltooth sawfish, and corals.

87. EPA's issuance of the criteria is therefore an agency action subject to ESA consultation. Consultation on the overarching framework established by EPA's cadmium criteria is necessary to ensure that the Services analyze the cumulative impact of EPA's decision and issue programmatic biological opinions establishing appropriate program-wide criteria that ensure protection of threatened and endangered species.

CLAIM FOR RELIEF

Violation of the Endangered Species Act, 16 U.S.C. §§ 1531-1544, and applicable regulations.

88. Plaintiff realleges, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

89. EPA has a duty pursuant to ESA Section 7(a)(2) to ensure that its actions are not likely to jeopardize the continued existence of endangered and threatened species or result in the destruction or adverse modification of such species critical habitat. 16 U.S.C. § 1536(a)(2). To fulfill this duty, EPA must initiate and complete ESA Section 7 consultation on its revision of cadmium criteria under the CWA.

90. Under the ESA's implementing regulations, whenever a proposed action "may affect" listed species, the agency must initiate and complete Section 7 consultation, 50 C.F.R. §§

402.02, 402.14(a). EPA's revision of the cadmium criteria certainly "may affect" listed species or designated critical habitat. Elevated levels of cadmium in waters are likely to harm various ESA-listed species, including fish that face grave threats even from very low levels of cadmium, and long-lived species like listed sturgeons and sea turtles that accumulate increasingly harmful levels of cadmium in their tissues over time.

91. EPA's revision of the cadmium criteria is a discretionary agency action. EPA used its discretion in setting the cadmium criteria to, among other things, make judgments about the relationship between cadmium concentrations and potential environmental effects; select from a range of options, rationales, analyses, and conclusions to arrive at the final content of the proposed criteria; and accept suggested modifications to its scientific analysis from some commentators (like U.S. Geological Survey) but not others (like NMFS).

92. Consultation on the revision of cadmium criteria is necessary to afford the Services the opportunity to identify where implementation of the revised criteria may be problematic for ESA-listed species or critical habitat, and to provide reasonable and prudent measures to minimize take, such as measures to ensure that EPA gathers and analyzes sufficient data to prevent jeopardy to listed species, and to ensure that incidental take does not occur at unsustainable levels.

93. EPA's failure to undertake and complete consultation on the revised cadmium criteria with the Services constitutes a failure to ensure, as mandated by the ESA, that EPA's actions are not likely to jeopardize the existence of ESA-listed species or result in destruction or adverse modification of critical habitat, in violation of Section 7 of the ESA, 16 U.S.C. § 1536, and the ESA's implementing regulations.

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REQUEST FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that this Court:

a) Declare that EPA is in violation of Section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2), by failing to complete consultation necessary to ensure that its action related to the cadmium criteria is not likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat;

b) Vacate EPA's 2016 adoption of Section 304(a) freshwater chronic criterion for cadmium;

c) Remand EPA's 2016 adoption of Section 304(a) criteria for cadmium to the agency;

d) Award Plaintiff its costs, expenses, and attorneys' fees under applicable law; and

e) Provide for such other relief as the Court deems just and appropriate.

Dated: March 22, 2022

Respectfully submitted,

SMITH & LOWNEY, PLLC
By: s/Richard A. Smith
Richard A. Smith (WSBA No. 21788)*
By: s/Claire Tonry
Claire Tonry (WSBA No. 44497)*
2317 E. John St.
Seattle, WA 98112
Tel: (206) 805-0857
richard@smithandlowney.com
claire@smithandlowney.com

Hannah Connor (VSB No. 74785)*
Center for Biological Diversity
1411 K Street NW, Suite 1300
Washington, DC 20005
Tel: (202) 681-1676
hconnor@biologicaldiversity.org

Attorneys for Plaintiff
*Seeking admission pro hac vice